DOCUMENT RESUME

ED 172 915 PS 010 664

AUTHOR Agnew, Patricia N.; Young, Richard D.
TITLE Verbal Mediation, Cognitive Tempo, and Self-Esteem in Normal-Active, High-Active and Hyperactive Boys.
PUB DATE Mar 79
NOTE 15p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (San Francisco, California, March 1518, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavior Problems; Clinical Diagnosis; *Cognitive Development; *Conceptual Tempo; Elementary Education; *Elementary School Students; *Hyperactivity; Informal Assessment; Males; *Physical Activity Level; *Self Control; Self Esteem; Student Evaluation
IDENTIFIERS Impulsivity; *Verbal Mediation

ABSTRACT

In addition to the prominent characteristics of high activity level, three other criteria are often used in identifying and understanding the hyperactive child. These criteria are impulsivity and cognitive tempo, cognitive immaturity and verbal mediation, and self-esteem. The purpose of this study was to demonstrate that third, fourth and fifth grade boys identified by teachers as disruptive when compared to less disruptive classmates, would exhibit a discontinuous style of responding on a variety of cognitive tasks and would have lower self-esteem responses. Two control groups were composed of normal active and nondisruptive high activity students. Several tasks and inventories were used to investigate the three criteria thought to be associated with hyperactivity. Results indicated that teachers had clearly selected three groups of boys whose rated behaviors fell along an activity continuum with the high-activity manageable group falling midway between the normal and disruptive groups. Cognitive test results suggest that hyperactive boys have more difficulty modifying performance to meet situation demands. The disruptive students did not demonstrate expected impulsivity or verbal mediation behaviors. Disruptive boys rated themselves significantly lower in self-esteem than normal-active peers. (Author/RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED172915

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Richard D. Young

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Paper presented at SRCD
San Francisco, CA 1979

Verbal Mediation, Cognitive Tempo, and Self-Esteem in Normal-Active, High-Active and Hyperactive Boys

Patricia N. Agnew and Richard D. Young
Indiana University

PS 010664

If a vote were taken today to select the most popular term for discribing difficult school-age children, my guess would be that "hyperactive" would win hands down. For many teachers, "hyperactive" has become the acceptable label for the child who is unmanageable in the classroom and who appears to be functioning at less than optimal levels academically. While disruptive activity patterns are often seen as the major distinguishing characteristic of this group of children (typically boys) according to researchers such as Cole and Moore (1976), Conners (1969), and Sandoval (1977), there is considerable disagreement as to what other components are essential for a diagnosis of hyperactivity, and how these components relate to the activity dimension. Current research on the hyperactive syndrome suggests that in addition to the prominent characteristic of high activity level, three other criteria are often used in identifying and understanding the hyperactive child, and in evaluating the effectiveness of different treatment regimens: (1) impulsivity and cognitive tempo (2) cognitive immaturity and verbal mediation and (3) self-esteem. There has been no systematic attempt to examine relationships among these four criteria by employing measures from each category with the same hyperactive sample. In the present study

classroom behavioral patterns were conceptualized along an activity continuum from normal to disruptive. The aim of the study was to demonstrate that boys identified by teachers as disruptive when compared to less disruptive, would exhibit a discontinuous style of responding on a variety of cognitive tasks and would have lower self-esteem responses. Group results from separate discriminant function analyses for cognitive variables and self-esteem scales provided supporting evidence for the two central predictions of discontinuous cognitive performance and lower self-esteem.

The research literature on hyperactivity has primarily been concerned with the effectiveness of drug treatment on children who have been clinically labeled as hyperactive. While this is a critical area of investigation, it cannot directly address the question of whether the child's problems may in part be related either to the negative connotations of the hyperactive label (Cole & Moore, 1976) or to the socio-cognitive sequalae of drug use (Whalen & Henker, 1976). To avoid labeling complications, we used subjects from regular classrooms who were perceived by teachers as falling at the disruptive extreme of a normal to disruptive activity continuum and we deliberately chose not to employ the term "hyperactive" in our initial descriptive summaries to the teachers. We chose two control groups normal active and nondisruptive high activity. The latter group to get at the cutting edge between high activity and disruptive behavior. After selecting representative subjects, the teachers filled out for each subject a Conners Teaching Rating Scale (Conners, 1969) which is routinely used for identifying clinical hyperactive populations.

Tasks and inventories were chosen to investigate the three criteria which we see as associated with hyperactivity. For cognitive tempo, we employed Kagan's (1964) Matching Familiar Figures Test on which clinical hyperactive subjects typically appear more impulsive than their non-hyperactive peers. A variety of tasks were used to examine verbal mediational strategies and cognitive immaturity: Draw-a-Line (Becker, 1976), finger tapping (Meichenbaum, 1969), and Simon Says (Strommen, 1973). In all of these exercises, the child must listen to the examiner's verbal instructions and inhibit or direct his motor responses accordingly. Research findings by the Russian psychologist Luria (1960) suggest the possibility that hyperactive children might be slower in developing these controls. In addition, a written record of self-verbalizations was kept during performance on three subtests from the Wechsler Intelligence Scale for Children-Revised: Block Design, Mazes, and Object Assembly to test out Vygotsky's (1962) and Kohlberg's (1968) hypotheses that cognitive immaturity could be determined by thekind and amount of spontaneous private speech, and that hyperactive boys like aggressive boys (Camp, 1977) would use more immature, non-directed verbalizations. Finally, we wanted to find out how boys, seen as disruptively active by their teachers, viewed themselves. By the time clinically labeled hyperactive children reach the teenage years, their self-esteem is significantly lower than non-hyperactive peers according to findings from three research teams led by Mendelson, Weiss, and Riddle. A recent study by Wilson found similar results with a younger sample labeled hyperactive. Coopersmith's Self-Esteem Inventory (1959) was given to our three activity groups to clarify patterns of self-evaluation in an elementary-age population.

A few comments will help to give you a sense of how the study proceeded. Sixteen teachers selected one boy for each of the three groups: normal-active, high-active manageable, and high-active disruptive. The boys were all in the third, fourth, and fifth grades of local public schools. The examiner (myself) remained uninformed of group membership while administering the various tests and inventories in two sessions of approximately 45 minutes each.

After all the testing had been completed, the behavioral rating scales were analyzed to determine if our initial assumptions about our high-active disruptive group being a pre-clinical behavioral equivalent for hyperactive samples was justified. Table 1 shows the results. Four of Conners five Factors differentiated significantly the three activity groups and the mean score on Factor IV, Hyperactivity, was above the clinical cut off (2.17) established by Sprague (1974). Teachers had clearly selected three groups of boys whose rated behaviors fell along an activity continuum with the high-active manageable group falling midway between the normal and disruptive groups--the values of the centroids demonstrate this arrangement as the basis for the discriminant analysis in Table 1.

Table 2 shows the weightings for selected cognitive variables. In this table, the centroids show that the best discrimination was achieved by contrasting the more similar high-active manageable and normal groups to the hyperactive group. This contrast lends some confirmation to our original hypothesis that whereas behavioral patterns would fall along an activity continuum for the three groups, cognitive performance would be discontinuous. Coefficients which are in the predicted direction are

(1) Finger Tapping Baseline and Covert Difference--the hyperactive boys tapped faster initially, and slowed down less when whispering commands to themselves to slow; (2) Simon Says non-facing errors--the hyperactive boys made more errors on the Simon Says game when they were facing away from the examiner than their peers made; (3) on the Draw-a-Line (Seconds and Errors)--the hyperactive disruptive boys drew an 11 inch line faster and less accurately than the normal and high-active groups. The major weightings from Finger Tapping, Simon Says and Draw-a-Line all represent tasks which involve verbal monitoring of motor responses. It would appear that as a group these hyperactive boys have more difficulty modifying performance to meet situation demands. Using Luria's theoretical framework, this difficulty can be understood as a sign of possible cognitive immaturity.

However, not all the weightings from cognitive variables were in the predicted direction. The hyperactive boys actually took longer on the Matching Familiar Figures Test than the other groups. In this visual discrimination task the targeted group did not show the typical impulsivity found in clinical hyperactive samples reported by Campbell and by Juliano. Nor did present findings support our hypothesis about verbal mediation. Unlike Camp's results with aggressive boys, none of the self-verbalization categories significantly differed across groups. At this age and with this pre-clinical sample, private speech forms as described by Kohlberg are not a distinguishing characteristic of hyperactive boys. The negative findings on impulsivity and verbal mediation may reflect the older age of the present sample.

Table 3 presents the results of the self-esteem measure and shows that on the Total Score and General Self Scale, these pre-clinical

hyperactive boys are rating themselves significantly lower than normal-active peers. Poor self-esteem could be contributing to these children's tendencies to act out in a disruptive and inappropriate fashion in order to get attention from teachers and classmates.

In summary, our pre-clinical hyperactive sample can usefully be considered a population at "risk", based on results from activity, cognitive, and self-esteem discriminant function analyses. The 16 boys described as high-active disruptive were, as a group, significantly different from their normal and manageable classmates on a teacher-rated behavioral scale. Under the conditions of the present study, the actual level of performance for these hyperactive boys on certain IQ subtests was not significantly below their classmates. What was different about the groups was that it was more difficult for the high-active disruptive group to monitor behavioral responses to meet situation demands. As Whalen and Henker (1976) argue, this may be a more important problem for hyperactive children than inordinate activity levels. Clearly, the level of intellectual functioning for the present targeted group permits a certain optimism about the possibilities for preventive intervention with a pre-clinical smaple. A cognitive modification program modeled after the work of Meichenbaum (1975) should be effective in training these boys to monitor their activity patterns in a structured classroom setting. Perhaps the individual attention given the disruptively active children would also have the side-effect of making them feel more positive about themselves and their school situation.

Much of the young child's involvement at school requires him to listen to, and follow the teacher's instructions for adapting his behavior to specific situational demands. This fact, in conjunction with the

present findings, suggests two important directions for future study. First, a replication study using the same tasks (SS, FT, DAL) could be designed for a younger population of hyperactive boys to see how results compared with the present data. Second, new and more advanced tasks which require subjects to monitor motor responses could be developed and administered to a sample of boys similar in age to the present group (e.g., group administration of mazes, games such as "Giant Steps," auditory and/or visual vigilance tasks). If patterns of responding in the hyperactive group again suggested cognitive immaturity, this finding would be additional support for inferring that verbal control over motor activity may be a critical dimension for differentiating hyperactive and normal boys, and would provide experimental evidence for the appropriateness of using cognitive modification programs with hyperactive children.

References

Becker, L. D. Conceptual tempo and the early detection of learning problems. Journal of Learning Disabilities, 1976, 9, 433-442.

Camp, B. W. Verbal mediation in young aggressive boys. Journal of Abnormal Psychology, 1977, 86, 145-153.

Campbell, S., Douglas, V., & Morganstern, G. Cognitive styles in hyperactive children and the effect of methylphenidate. Journal of Child Psychology and Psychiatry, 1971, 12, 55-67.

Cole, S. O., & Moore, S. F. The hyperactive child syndrome: The need for reassessment. Child Psychiatry and Human Development, 1976, 7, 103-112.

Conners, C. K. A teacher rating scale for use in drug studies with children. American Journal of Psychiatry, 1969, 126, 884-888.

Coopersmith, S. The antecedents of self-esteem. San Francisco: W. H. Freeman, 1967.

Juliano, D. B. Conceptual tempo, activity, and concept learning in hyperactive and normal children. Journal of Abnormal Psychology, 1974, 83, 629-634.

Kagan, J., Rosman, B. L., Day, D., Albert, J., & Phillips, W. Information processing in the child: Significance of analytic and reflective attitudes. Psychological Monographs, 1964, 78 (1, Whole No. 578).

Kohlberg, I., Yaeger, J., & Hjertholm, E. Private speech: Four studies and a review of theories. Child Development, 1968, 39, 691-736.

Luria, A. R. The role of speech in the regulation of normal and abnormal behavior. Bethesda, Md. U.S. Department of Health, Education and Welfare. Public Health Service, National Institute of Health, Division of General Medical Sciences, Russian Translation Program, 1960.

Meichenbaum, D. Theoretical and treatment implications of developmental research on verbal control of behavior. Canadian Psychological Review, 1975, 16, 22-27.

Meichenbaum, D., & Goodman, J. Reflection-impulsivity and verbal control of motor behavior. Child Development, 1969, 40, 785-797.

Mendelson, W., Johnson, J., & Stewart, M. Hyperactive children as teenagers: A follow-up study. Journal of Nervous and Mental Diseases, 1971, 153, 273-279.

Riddle, K. D., & Rapoport, J. L. A 2-year follow-up of 72 hyperactive boys. Journal of Nervous and Mental Diseases, 1976, 162, 126-134.

Sandoval, J. The measurement of the hyperactive syndrome in children. Review of Educational Research, 1977, 47, 293-318.

Stewart, M. A., Mendelson, W. B., & Johnson, N. E. Hyperactive children as adolescents: How they describe themselves. Child Psychiatry and Human Development, 1973, 4, 3-11.

Strommen, E. A. Verbal self-regulation in a children's game: Impulsive errors in "Simon Says." Child Development, 1973, 44, 849-853.

Vygotsky, L. S. Thought and Language. Cambridge, Mass.: The MIT Press, 1962.

Weiss, G., Minde, L., Werry, J. W., Douglas, V., & Nemeth, E. Studies on the hyperactive child, VIII: A five-year follow-up. Archives of General Psychiatry, 1971, 24, 409-424.

Whalen, C. K., & Henker, B. Psychostimulants and children: A review and analysis. Psychological Bulletin, 1976, 83, 1113-1130.

Wilson, W. D. A study of self-concept of hyperactive children. Dissertation Abstracts International, 1976, 37 (1-B), 447-448.

Table 1

Conners' Teacher Rating Scale (TRS) Total Score and Discriminant Function Analysis for Factors

Group Means, Standard Deviations, F Values for Univariate Group Comparisons,

and Standardized Discriminant Function Coefficients

	Normal-Active (n = 16)		High-Active (n = 16)		Hyperactive (n = 16)			
	M	SD	M	SD	M	SD	F	Discriminant Function[a]
Total	.44	.34	.79	.46	1.28	.41	17.21**	
Factor I: Conduct Problem	.17	.42	.32	.47	.90	.66	8.38**	.27
Factor II: Inattentive-Passive	.62	.54	1.12	.83	1.50	.53	7.38*	-.08
Factor III: Tension-Anxiety	.51	.46	.51	.38	.57	.33	.14	-.03
Factor IV: Hyperactivity	.67	.55	1.51	.60	2.23	.51	32.01**	-1.59
Factor V: Peer-Unsociable	.22	.31	.47	.87	1.00	.79	5.22*	-.20
Centroid	1.53		-.12		-1.41			

[a]Results are reported for the first function only: Wilks Lambda = .38, $\chi^2(10) = 45.41$, $p < .000$.

*$p < .01$

**$p < .001$

Table 2

Cognitive Variables

Standardized Discriminant Function Coefficients[a]

Variable	Discriminant Function
MFFT Latency	-.45
DAL Seconds	.09
DAL Errors	.39
FT Baseline	-.49
FT Covert Difference	.53
SS Facing	.20
SS Non-facing	-.40
Vocabulary	.07
Block Design	.63
Maze	-.37
Object Assembly	.29
Immature Speech	-.05

Note: Abbreviations: DAL = Draw-a-Line; MFFT = Matching Familiar Figures Test; FT = Finger Tapping; SS = Simon Says.

[a]Results are reported for the first function only: Wilks Lambda = .47, $\chi^2(24) = 30.28$, $p < .10$. The centroids are Normal-Active = .00, High-Active = .50, Hyperactive = 1.10.

Table 3

Self-Esteem Inventory (SEI) Total and Discriminant Function Analysis for Subscales

Group Means, Standard Deviations, F-Values for Univariate Group Comparisons,

and Standardized Discriminant Function Coefficients

SEI Score	Normal-Active (n = 16) M	SD	High-Active (n = 16) M	SD	Hyperactive (n = 16) M	SD	F	Discriminant Function[a]
Total[b]	81.00	13.66	73.88	15.40	66.88	14.12	3.85*	
Lie Scale[c]	2.13	1.08	1.75	1.57	2.06	2.02	.25	
Social Self-Peers	6.75	1.00	5.56	1.83	5.81	1.68	2.63	-.15
Home-Parents[b]	6.75	1.44	6.19	1.64	5.37	2.03	2.58	.18
School-Academic	5.94	1.91	5.13	2.19	4.75	1.81	1.51	-.37
General Self[b]	22.31	4.48	19.81	3.27	17.50	3.37	6.60**	1.30
Centroid	.64		.06		-.70			

[a]Results are reported for the first function: Wilks Lambda = .70, $\chi^2(8) = 15.77$, $p < .046$.

[b]Significant contrasts between Normal-Active and Hyperactive only, $p < .05$.

[c]The Lie Scale did not differentiate between groups in univariate analysis of variance and was excluded from further analysis.

*$p < .05$.

**$p < .01$.